

### Amendments to the Specification

**Page 3,        please replace the paragraph spanning lines 19-25 with the following rewritten paragraph:**

According to this invention, there is provided a method of surface treatment of titanium metal wherein plasma carburizing is carried out in an atmosphere comprising a carburizing gas having ~~the molar~~ an atomic weight ratio of hydrogen atoms (H) to carbon atoms (C) adjusted to  $1 \leq H/C \leq 9$  at a pressure of 13-400 Pa and a temperature of 400-690 °C.

**Page 5,        please replace the paragraph spanning lines 5-15 with the following rewritten paragraph:**

Also, in order to reliably solve the same object, a method of surface treatment of a titanium metal is preferable which comprises the steps of heating the titanium metal to a temperature of 400-690 °C in a cleaning gas atmosphere containing hydrogen gas, subjecting the surface of the titanium metal to cleaning by applying a DC voltage of 200-1500 V, and plasma carburizing in an atmosphere comprising a carburizing gas having ~~the molar~~ atomic weight ratio of hydrogen atoms (H) to carbon atoms (C) adjusted to  $1 \leq H/C \leq 9$  at a pressure of 13-400 Pa and a temperature of 400-690 °C.

**Page 8,        please replace the paragraph spanning lines 6-15 with the following rewritten paragraph:**

The ~~molar~~ atomic weight ratio of hydrogen atoms (H) to carbon atoms (C) in the carburizing gas among the above plasma carburizing conditions should be  $1 \leq H/C \leq 9$ . If the (H/C) ratio is less than 1, carburization will not proceed smoothly, so that high-hardness state will not be attained by carburizing from the titanium metal surface to the depth of 50  $\mu\text{m}$ , but the carbon becomes amorphous and deposits on the titanium metal surface. Also if H/C exceeds 9, the amount of carbon ions is insufficient, so that it takes a long time for carburization, which is not economical.

**Page 9,        please replace the paragraph spanning lines 14-24 with the following rewritten paragraph:**

Next, a carburizing gas comprising a hydrocarbon gas, hydrogen gas, etc. and having the ~~molar~~ atomic weight ratio (H/C) of hydrogen atoms (H) to carbon atoms (C) adjusted to  $1 \leq H/C \leq 9$  is introduced into the furnace so that the pressure will be within the range of 13-400 Pa. A high DC voltage of 400-600 V is applied at a current density of 0.1 A/m<sup>2</sup>-5 A/m<sup>2</sup> for plasma carburizing. In the plasma gas, ionized activated carbon C<sup>+</sup> will be produced, which adheres to the metal surface and further diffuses into the interior, or by the action of sputtering or implantation, carburizing reaction proceeds.